SERIES SHOW

CE

# YX-2007
# Show-Pro (RGB) Laser


# USER MANUAL

SILVER STAR
Professional Lighting

www.yagang.com

Version 1.2
2006.4.24

## ENGLISH INDEX



**Please read over this manual before operation the light**

# 1. Open the box for checking

In order to use this product safety and reasonable for the users, please read over this manual carefully before use and the operation must strictly according to this manual to avoid any damage to the product and personal safety.

Once after received this products please take and put carefully. And check carefully that whether the product was damaged or not during the transportation and please check the following things were enclosed:

| | |
|---|---|
| Laser light 1PCS | Graphics USB card 1PCS |
| 9 pin signal line 1PCS | USB connection cable 1pcs |
| 3 pin signal line 1pcs | User manual 1pcs |
| Power cable 1PCS | Install CD-ROM 1PCS |

# 2. Installation

1. Please check the voltage whether is the same with the one showed on the equipment or not.
2. It must ask for the technical person and set the light safety when installation. And let the light beam at the suitable angle.
3. When install this equipment please make sure there's no flammable surfaces (decorated things, etc) within at least 1.5M and maintain minimum distance of 0.5M from the equipment to the walls.
4. Please make sure that there's no other equipment or decorating materials obstructed the exhaust fan and the vent-pipe.
5. Products should be install immobility.
6. In case of safety, it's very important that to connect the earth with line.

## 3. Attention

1. Must operate according to the user manual. Don't separate the light personally. Call the technician when the machine breaks down.
2. Please do not see the laser beam directly to avoid any damage.
3. Before connect or disconnect the power, please adjust the luminance of the laser diode to the least to avoid any damage to the laser diode.
4. This unit should be keep dry, do not use in the rain or dank and dusty environment. It can be use in the outdoor with the water-proof cover protector.
5. Set the light immobility and try to avoid strong shake or hit.
6. Prevent dust into the equipment to avoid problems.
7. Please keep that there's no other equipment or decorating materials obstructed the exhaust fan and the vent-pipe when the equipment was working.
8. Before connect power, check the plug is immobility or not, power line should be connect well.
9. Please do not open or close the equipment frequently that's to avoid any affect to the life span of the laser diode, and try the best to avoid the long time working.
10. Due to the characteristic of the laser diode, after three hours working, it should be close at least 25 minutes until the laser diode cooling then work again.
11. Don't touch the light or draw the power line when your hand was wet. And do not pull the electronic power line.
12. Maintain the distance at least 10M above from the equipment to the object.
13. This equipment does not have any parts can repair for the users, please do not open the equipment.
14. When the laser diode became dim or damaged please contact the dealer timely.
15. To use the original package when transport again and to avoid shake.

## 4. Warning

1. Don't look the light directly to prevent make some destroy with eyes..
2. Keep the space between light equipments and the lighted things more than 10 M.

# 5. Structure of the fixture

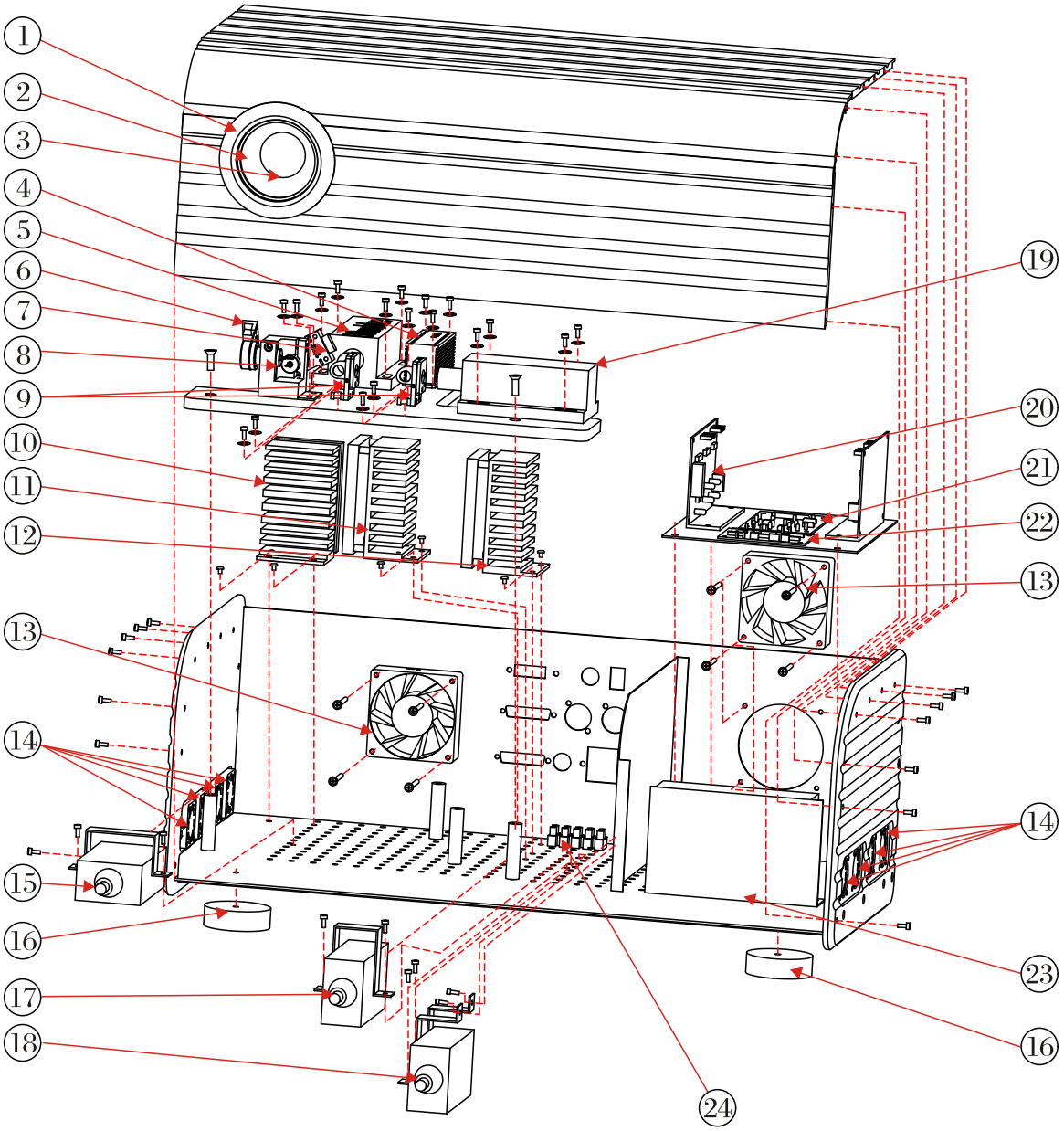
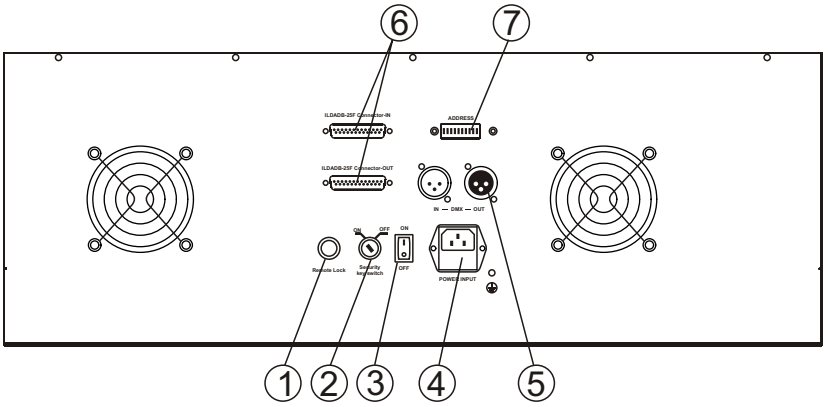



Fig 5–1

| No. | Description. | Qty |
|---|---|---|
| 1 | Lens cover | 1 |
| 2 | Dustproof glass | 1 |
| 3 | Reflect bowl | 1 |
| 4 | Red laser diode | 1 |
| 5 | Blue laser diode | 1 |
| 6 | X scan motor | 1 |
| 7 | Y scan motor | 1 |
| 8 | Scan motor holder | 1 |
| 9 | Adjustable reflect mirror holder | 2 |
| 10 | Power supply 2 of blue laser diode | 1 |
| 11 | Power supply 2 of green laser diode | 1 |
| 12 | Power supply 2 of red laser diode | 1 |

| No. | Description. | Qty |
|---|---|---|
| 13 | AC 220V fan | 2 |
| 14 | DC 12V fan | 8 |
| 15 | Power supply 1 of blue laser diode | 1 |
| 16 | Feet of machine | 4 |
| 17 | Power supply 1 of red laser diode | 1 |
| 18 | Power supply 1 of green laser diode | 1 |
| 19 | Green laser diode | 1 |
| 20 | X scan | 1 |
| 21 | Control board | 1 |
| 22 | TTL switch board | 1 |
| 23 | Power supply | 1 |
| 24 | Connector | 1 |

# 6. Control board instruction




| | |
|---|---|
| 1 | **Remote Lock**：In the event of removal, laser will not emit any beam.(E.U. IEC regulation) |
| 2 | **Security key switch**：Laser diode ON/OFF |
| 3 | **POWER ON/OFF**：Power switch |
| 4 | **POWER INPUT**：Input power, with inner fuse. |
| 5 | **DMX IN/OUT**：DMX signal input/output |
| 6 | **ILDA DB 25 F Connector**: signal input connection port of the laser perform software that in accordance with the ILDA standard. |
| 7 | **ADDRESS:** the 10th code is switch code. When the 10th code is OFF, 1~9 are function codes. When the 10th code is ON,1~9 will be DMX address codes. The address code of first light usually by 1, the second light is 14 and so on. |

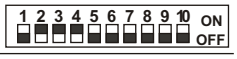
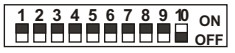
**NOTE:**

1. When **ILDA DB 25F connector ' s** connection port are free, the lamp will drive by the inside program, temporality it can control by DMX 512 signal.
2. After connect the ILDA DB 25F, The lamp will change to ILDA connected port drive mode ,this connection port can receive all the signal of laser perform software that accord with the ILDA standard, such as LD-2000 of Pangolin Company.

**DMX address code setting:**

in the binary, each digit have "0" or "1" just correspond to "OFF" or "ON" switch situation.

Example for DMX address code:

| DECIMAL | BINARY LSB ⟶ MSB | USAGE OF DIP SWITCH |
|---|---|---|
| 0 | 000000000 |  |
| 1 | 100000000 |  |
| 14 | 011100000 |  |
| 511 | 111111111 |  |

# 7. Control PCB Replacement

**Steps:**

Disassemble defective PCB and then assemble new PCB.Make some marks of cable connection of refer to electrical diagram so that the connection of cables shonld be exactly same as original one.

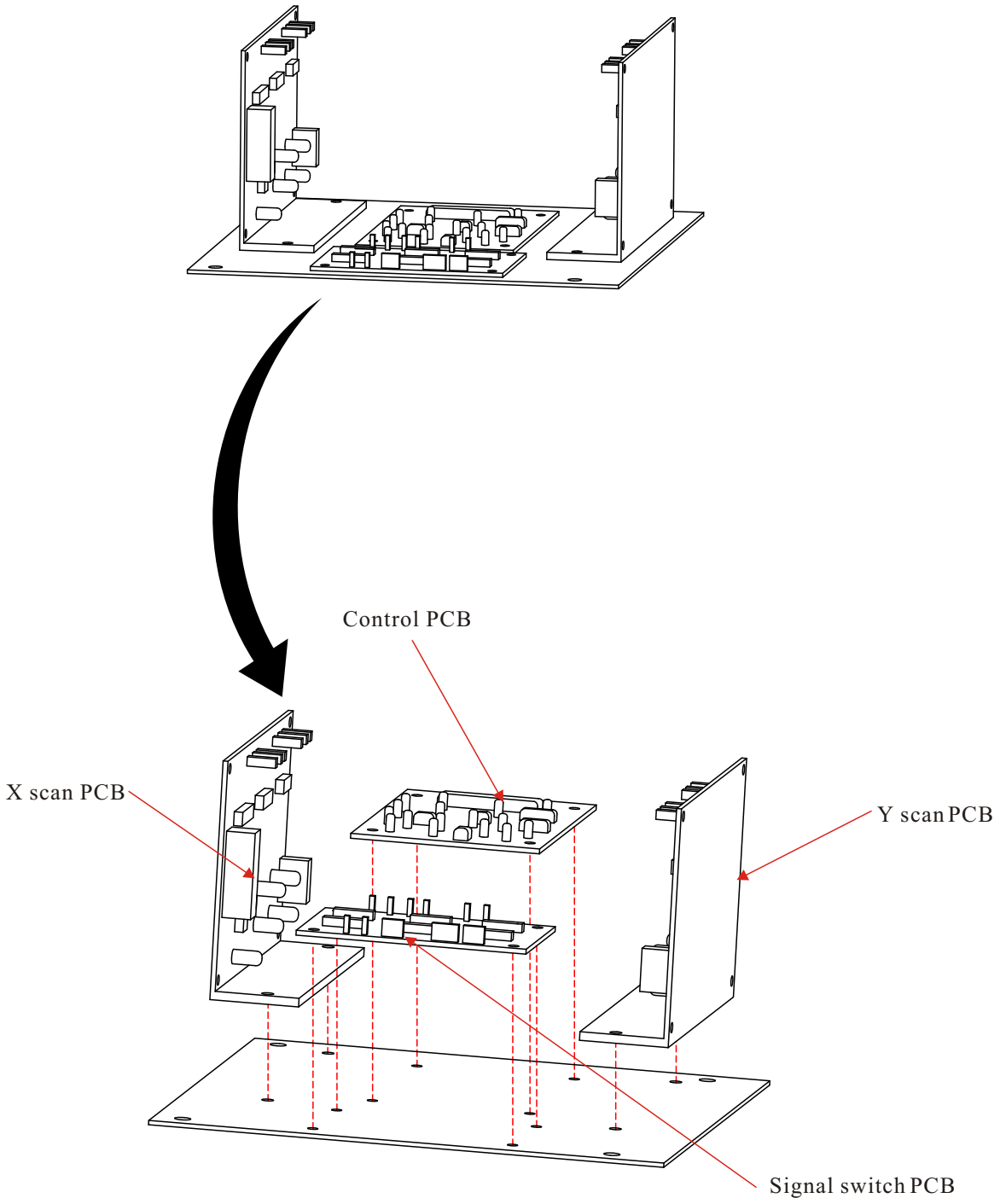



Fig 7-1 Control PCB Assembling Diagram

# 8. Scan motor Replacement

**(1) Steps:**

1. Unscrew UK M6 screw and plug out male signal connector.
2. Disassemble all M4 × 10 screw for X,Y scanner socket so that scan motors can be took out,put in or rotate to adjust the scan angle.
3. After adjust ,fix M4 × 10 screws,plug in male signal connector and then screw UK M6 screw.

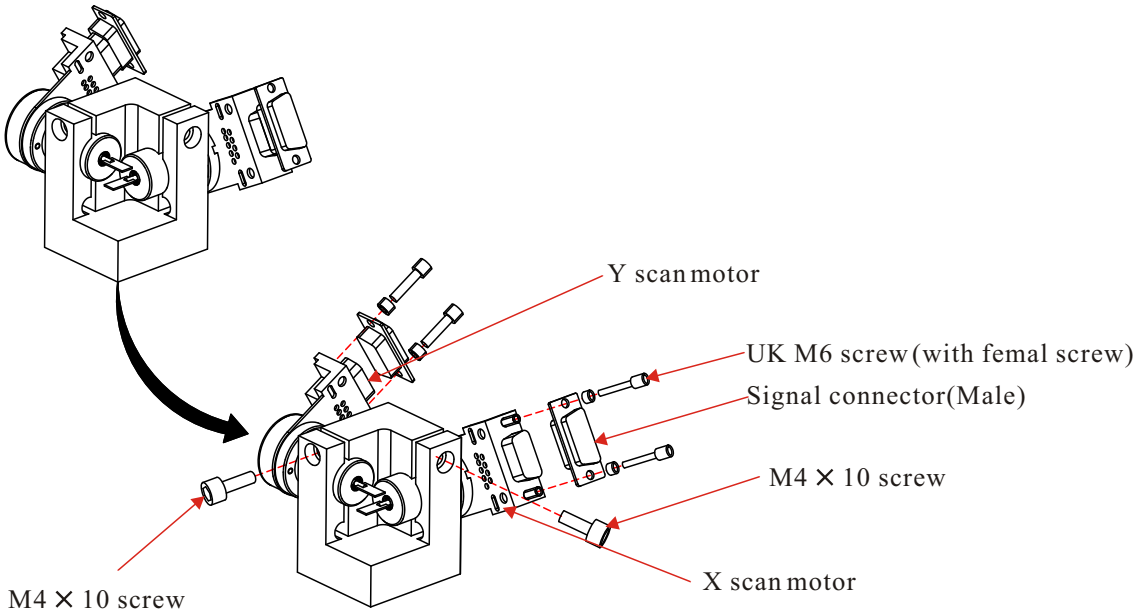



Fig8-1 Scan motor install diagram

**(2) Optical system:**

RGB mix beam be reflected out by X,Y scan mirrors.

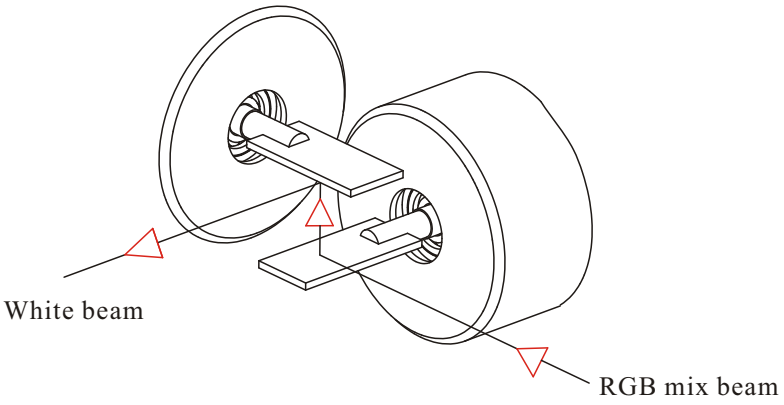



Fig8-2 Optical System diagram

# 9. Adjustable mirror socket

**(1) Steps**

1. Loose setscrew of X,Y and then adjust mirror socket to suitable position by X,Y adjustable screws.
2. Adjust Z adjustable screw at same time.
3. Fix X,Y setscrew.

**NOTE:** Made sure all beams through adjustable mirror socket be one point when you adjust X,Y,Z line with adjustable screw.

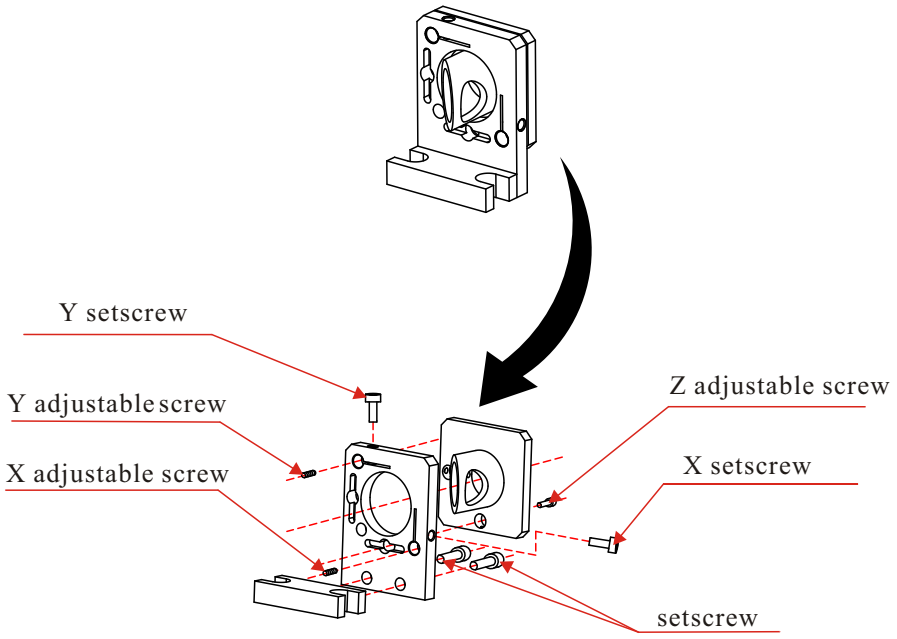



Fig9-1 Adjustable mirror socket structure

**(2) RGB Laser beams mix system:**

Mirror socket 1: Transmit green beam,reflect red beam,and then mix out yellow beam through mirror socket 1.

Mirror socket 2: Transmit yellow beam,reflect blue beam ,and then mix out white beam through mirror socket 2.

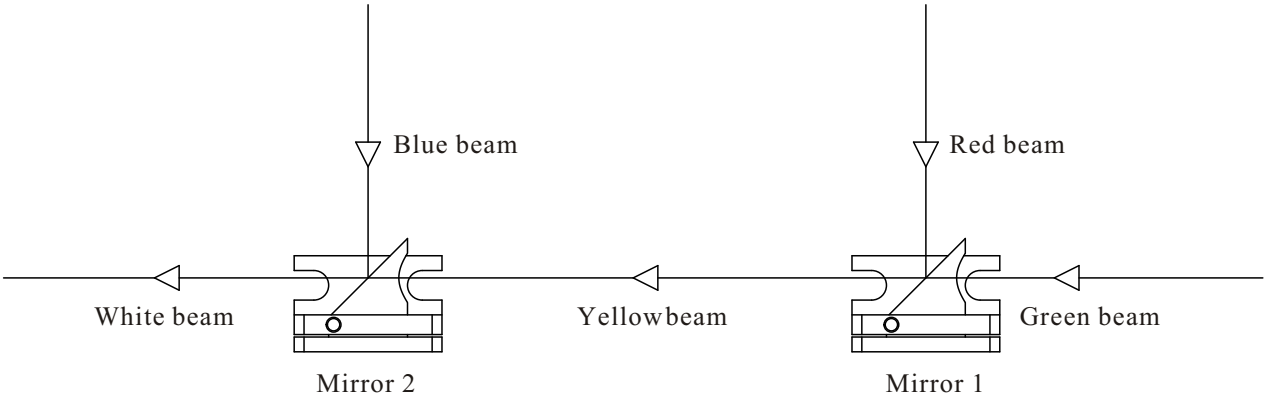



Fig9-2 RGB laser beams mix system

## 10. Laser diode replacement

**Methods:**

Disassemble whole laser system (include power supply1,power supply 2,laser diode) and then replace new one at original position.

Note:keep laser diode,power supply and cables be 《ompletly and don`t try to damage,destroy or cut them so that it can be repaired (crefer fig 1-7).》

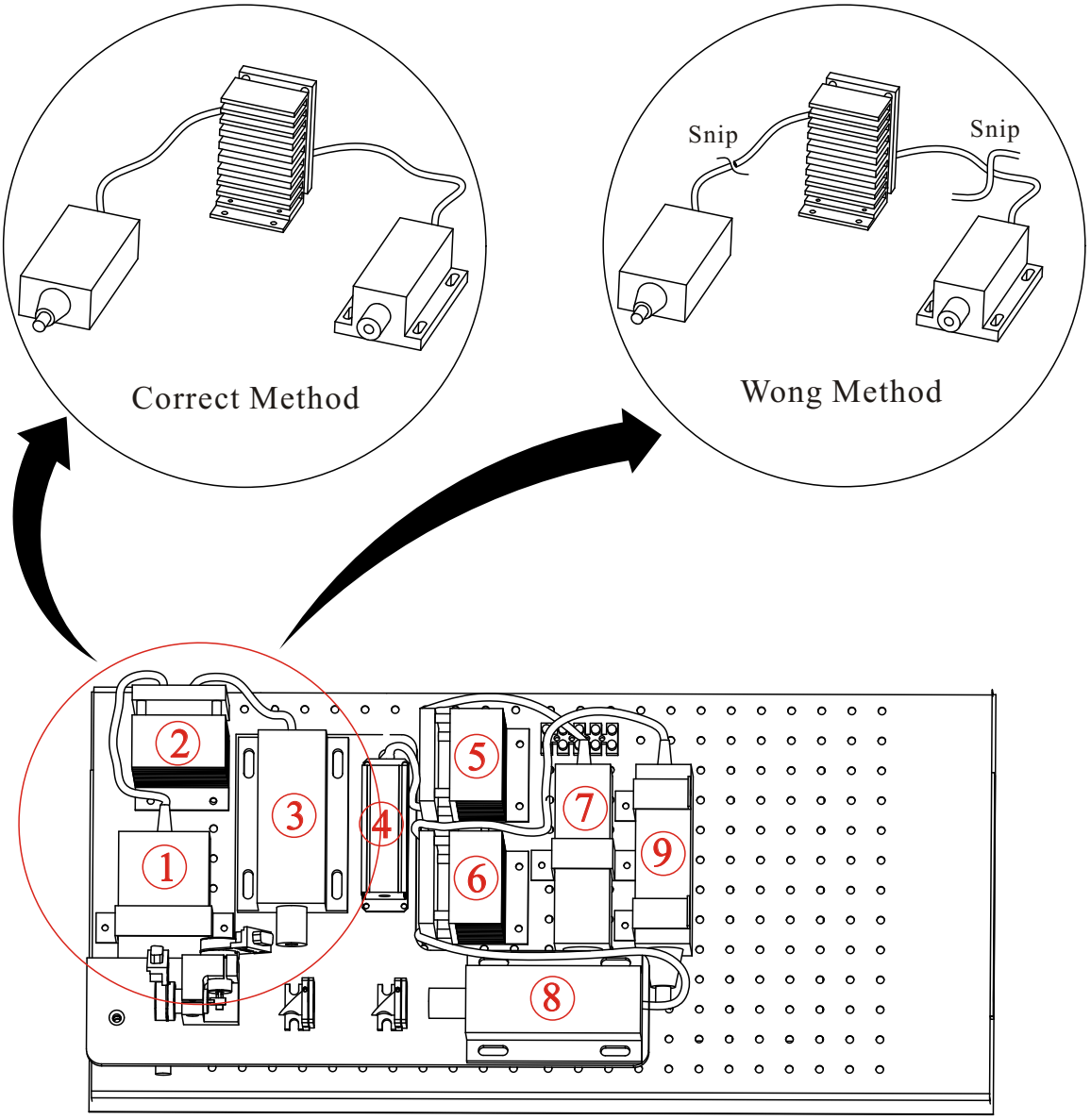



Fig10-1

| | | | |
|---|---|---|---|
| ① | power supply 1 of blue laser diode | ⑥ | power supply 2 of green laser diode |
| ② | power supply 2 of blue laser diode | ⑦ | power supply 1 of red laser diode |
| ③ | blue laser diode | ⑧ | Green laser diode |
| ④ | red laser diode | ⑨ | power supply 1 of green laser diode |
| ⑤ | power supply 2 of red laser diode | | |

# 11. Electrical diagram of laser

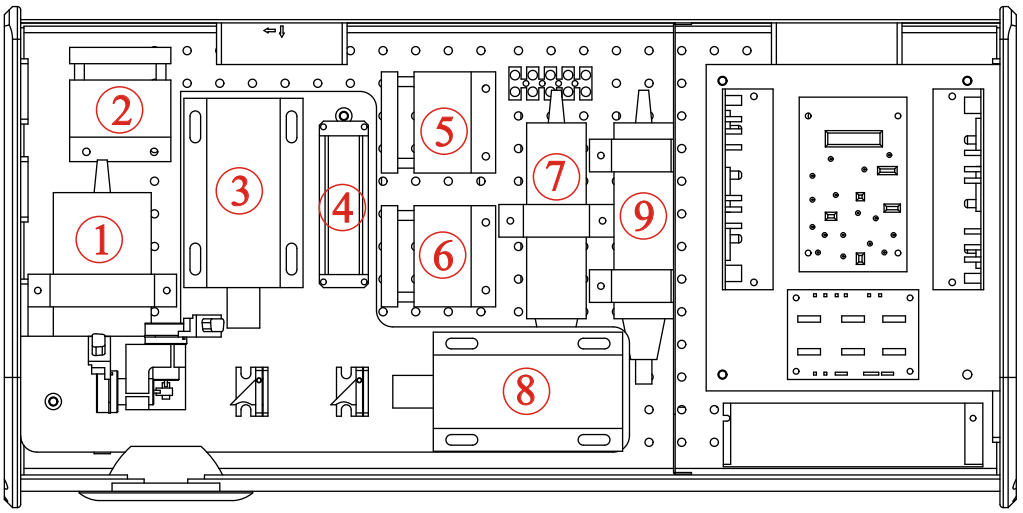



Fig 11-1 TOP

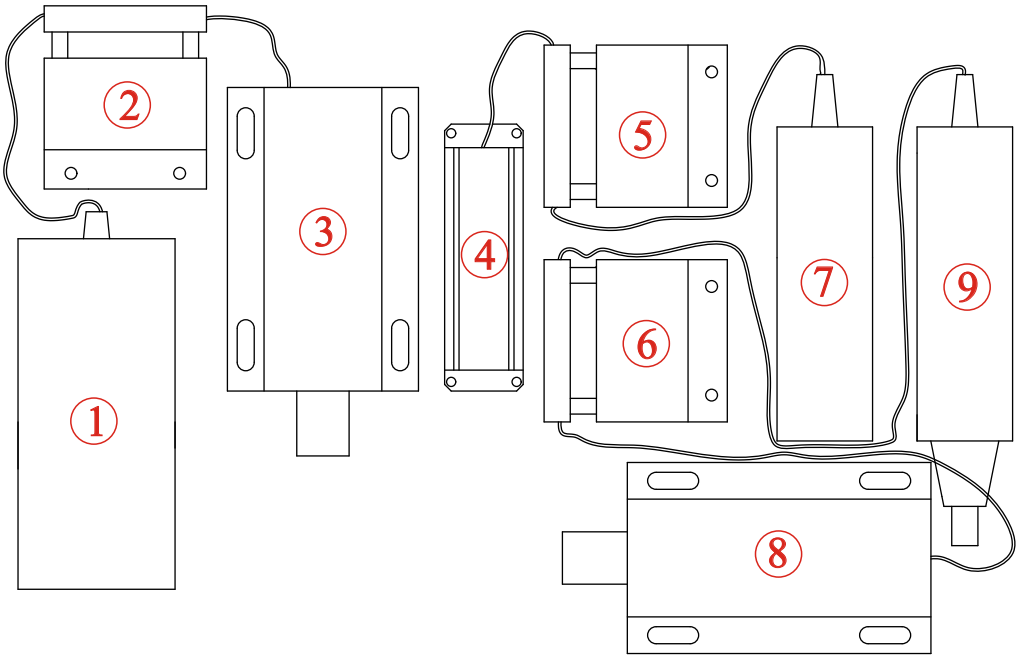



Fig11-2

| | | | |
|---|---|---|---|
| ① | power supply 1 of blue laser diode | ⑥ | power supply 2 of green laser diode |
| ② | power supply 2 of blue laser diode | ⑦ | power supply 1 of red laser diode |
| ③ | blue laser diode | ⑧ | Green laser diode |
| ④ | red laser diode | ⑨ | power supply 1 of green laser diode |
| ⑤ | power supply 2 of red laser diode | | |

## 12. DMX512 Operate

The product has 16 operate channels(international standard DMX512 signal),The details as follow：

| | | DMX512 Value | Function |
|---|---|---|---|
| 1 | Brightness | 0~255 | 0~100% dimmer |
| 2 | Colour | 0~25 | Original colour |
| | | 26~51 | white |
| | | 52~77 | Yellow |
| | | 78~103 | Red |
| | | 104~129 | Green |
| | | 130~155 | Cyan |
| | | 156~181 | Blue |
| | | 182~207 | Purple |
| | | 208~233 | Colour change |
| | | 234~255 | Colour fluent from slow to fast |
| 3 | Pattern Group | 0~31 | pattern group 1 |
| | | 32~63 | pattern group 2 |
| | | 64~95 | pattern group 3 |
| | | 96~127 | pattern group 4 |
| | | 128~159 | pattern group 5 |
| | | 160~191 | pattern group 6 |
| | | 192~223 | pattern group 7 |
| | | 224~255 | pattern group 8 |
| 4 | pattern | 0~255 | (0~255)/8=32pcs |
| 5 | Horizontal roll | 0~255 | roll from slow to fast |
| 6 | Vertical roll | 0~255 | roll from slow to fast |
| 7 | Z roll | 0~255 | roll from slow to fast |
| 8 | Horizontal move | 0~255 | from slow to fast |
| 9 | Vertical move | 0~255 | from slow to fast |
| 10 | Horizontal stretch | 0~255 | from slow to fast |
| 11 | Vertical stretch | 0~255 | from slow to fast |
| 12 | Horizontal & Vertical stretch | 0~255 | from slow to fast |
| 13 | Slow-draw speed | 0~255 | from slow to fast |
| 14 | Point-Draw | 0~255 | from slow to fast |
| 15 | Scan speed | 0~255 | from slow to fast |
| 16 | Pattern size | 0~1 | Original size |
| | | 2~255 | 100 grades |

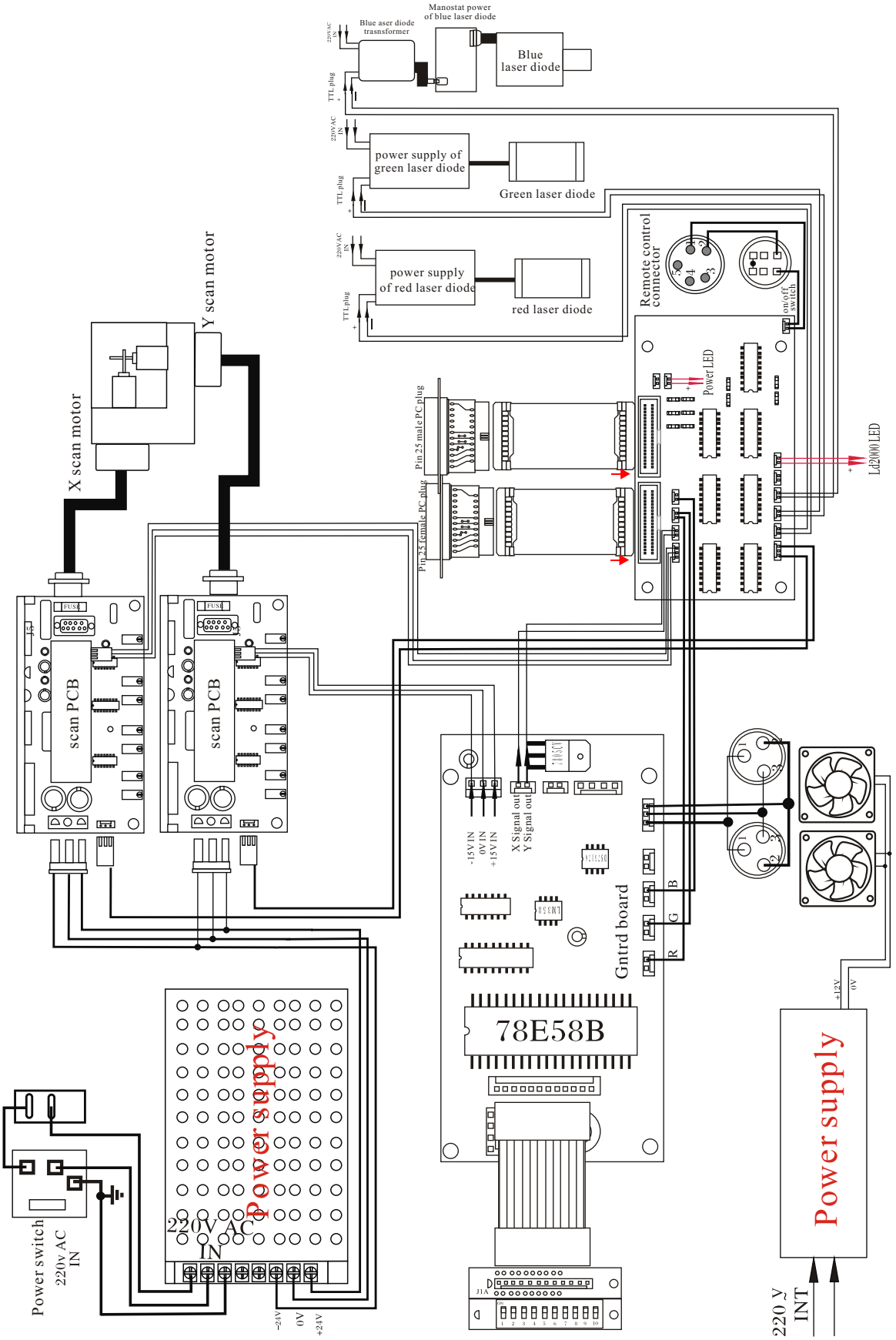
## 13. Specification

Voltage: AC 220V~240V, 50/60Hz
Total power: 120W
Signal input power: -5~+5V
X/Y axes beam scanning optical angle: 0~±30°
Input signal bandwidth: 0~1000Hz
Condition temperature: -10℃~+35℃
Laser light power: Red Laser Class 3B 635nm >150mW
Green Laser Class 3B 532nm >60mW
Blue Laser Class 3B 473nm >60mW
With Dimmer function
Net weight: 27 kg
Dimension: 62 x 30 x 19.5 cm

## 14. Maintain

Maintenance should be performed every 15-day period, by using a sponge which is dipped with alcohol, rather than wet cloth or other chemical liquid, to clean the mirror.
Warning: Power must be disconnected before maintenance or repair. Do not look at the light source directly.
ATTENTION: DISCONNECT INPUT POWER BEFORE MAINTAIN.
DON'T LOOK STRAIGHTLY AT THE LIGHT SOURCES.
NOTE: Don't seperate laser machine from laser power and repaire them by yourself otherwise no good repair service will be supplied.

# 15. Electrical diagram



# 16. Trouble shooting

| SIUATION | REASON | FAULTY PART | PART NO. |
|---|---|---|---|
| No power | Damaged fuse | Fuse | 09-00-3001-01 |
| | Damaged power switch | Power switch | 08-05-04210-02 |
| | Damaged power supply | ±24V | 16-03-0004-00 |
| No music-active/ Music-active No sensitivity | Damaged mic | MIC | 16-03-0001-00 |
| | Damaged control PCB | Control PCB | 26-2A-LT6V20-00 |
| | Damaged potentiometer | Potentiometer | 04-03-0105-03 |
| | Damaged 78E58B IC | 78E58B IC | 00-78E58B-00 |
| X&Y axis motors no power | Damaged scanner | Scanner | 15-01-0002-00 |
| | Damaged 78E58B IC | 78E58B IC | 00-78E58B-00 |
| | Damaged control PCB | Control PCB | 26-2A-LT6V20-00 |
| | Damaged power supply | ±24V | 16-03-0004-00 |
| | Damaged scan board | Scan board | 26-2A-FASTSCAN-00 |
| No light output / light output low | Dirty lens | Please refer to the user manual for further instruction | |
| | Damaged laser diode | Green laser diode | 07-01-0050-00 |
| | | Red laser diode | 07-03-0100-00 |
| | | Blue laser diode | 07-02-0030-00 |
| | Damaged Control PCB | Control PCB | 26-2A-LT6V20-00 |
| | Operate | Please refer to the user manual for further instruction | |
| No control | Operate | Please refer to the user manual for further instruction | |
| | Damaged Control PCB | Control PCB | 26-2A-LT6V20-00 |
| | Damaged power supply | ±24V | 16-03-0004-00 |
| | Damaged address board | L T 6 address board | 26-2A-LT6SW-00 |
| | Damaged USB controller | 2007USB controller | USB20-KT-00 |
| | Internal wires are disconnected | USB signal cable | 27-08-0014-00 |
| | | L D 2000 signal cable | |

**Appendix**:

ILDA DB 25F PINOUTS DB 25 definens

| | | |
|---|---|---|
| **1** | X＋ | -5 to ＋5V |
| **2** | Y＋ | -5 to ＋5V |
| **3** | Intensity/Blanking＋ | 0V to ＋2.5V |
| **4** | Interlock A | Connected to pin 17 inside the Qm2000 |
| **5** | Red＋ | 0V to ＋2.5V |
| **6** | Green＋ | 0V to ＋2.5V |
| **7** | Blue＋ | 0V to ＋2.5V |
| **8** | Deep blue＋ | 0V to ＋2.5V |
| **9** | Yellow＋ | 0V to ＋2.5V |
| **10** | Cyan＋ | 0V to ＋2.5V |
| **11** | Z＋ | Depth Z(not intensity), -5 to ＋5V |
| **12** | Not connected | |
| **13** | Shutter | 0V to ＋5V |
| **14** | X－ | －5V to ＋5V |
| **15** | Y－ | －5V to ＋5V |
| **16** | Intensity/Blanking－ | －2.5V to 0V |
| **17** | Interlock B | Connected to pin 4 inside the Qm2000 |
| **18** | Red－ | －2.5V to 0V |
| **19** | Green－ | －2.5V to 0V |
| **20** | Blue－ | －2.5V to 0V |
| **21** | Deep blue－ | －2.5V to 0V |
| **22** | Yellow－ | －2.5V to 0V |
| **23** | Cyan－ | －2.5V to 0V |
| **24** | Z－ | －5V to ＋5V |
| **25** | Ground | Cable shield |